



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,846	12/07/2005	Helmut Bechtel	DE 020159	1258
24737 7590 08/10/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			EXAMINER HINES, ANNE M	
			ART UNIT 2879	PAPER NUMBER
			MAIL DATE 08/10/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

7/17

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/518,846	BECHTEL ET AL.	
	Examiner	Art Unit	
	Anne M. Hines	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2007.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 11, 2007 has been entered.

Claims 1-18 are pending in the instant application.

### ***Priority***

Applicant cannot rely upon the foreign priority papers to overcome the 35 U.S.C. § 102(e) rejection of claims 1-8 because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15 and MPEP § 1893.03(b).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Tyan et al. (US 2004/0140757).

Regarding claims 1-3, Tyan discloses an electroluminescent device comprising a substrate (Fig. 4c, 10; Page 6, Paragraph [0064]) and, adjacent to the substrate, a laminated body composed of an anode (Fig. 4c, 12R; Page 6, Paragraph [0067]), an electroluminescent layer directly on the anode (Fig. 4c, 14; Page 6, Paragraph [0067]), a cathode (Fig. 4c, 16a; Page 6, Paragraph [0066]), and  $2n+1$  transparent layers, where  $n = 0, 1, 2, 3, \dots a$ , which transparent dielectric layers alternately have a high refractive index of  $n > 1.7$  and are made of  $\text{TiO}_2$  (Fig. 4c, 18; Page 6, Paragraph [0066]) and a low refractive index of  $n \leq 1.7$  and are made of  $\text{SiO}_2$  (Fig. 4c, 18; Page 6, Paragraph [0066]), and the transparent dielectric layer bordering on the cathode has a high refractive index of  $n > 1.7$  (Fig. 4c, 18; Page 6, Paragraph [0066]) whereby reflection of light at the anode is decreased by the transparent dielectric layer and transmission of light through the anode is increased. Note that Tyan discloses that transparent conductive spacer layer 20 may have a thickness of 0, making it optional, and thereby disclosing a device where the electroluminescent layer is directly on the anode (Page 4, Paragraphs [0044]-[0045]).

Regarding claim 4-6, Tyan discloses an electroluminescent device comprising a substrate (Fig. 4c, 10; Page 6, Paragraph [0064]) and, a first electrode formed on the substrate (Fig. 4c, 12R; Page 6, Paragraph [0067]), an electroluminescent layer formed on the first electrode (Fig. 4c, 14; Page 6, Paragraph [0067]), a second electrode formed on the electroluminescent layer (Fig. 4c, 16a; Page 6, Paragraph [0066]), and

$2n+1$  transparent layers, where  $n = 0, 1, 2, 3, \dots a$ , which transparent dielectric layers alternately have a high refractive index of  $n > 1.7$  and are made of  $\text{TiO}_2$  (Fig. 4c, 18; Page 6, Paragraph [0066]) and a low refractive index of  $n \leq 1.7$  and are made of  $\text{SiO}_2$  (Fig. 4c, 18; Page 6, Paragraph [0066]), and the transparent dielectric layer bordering on the second electrode has a high refractive index of  $n > 1.7$  (Fig. 4c, 18; Page 6, Paragraph [0066]).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. (US 6406801) (of record) in view of Weaver (US 6888305).

Regarding claims 1-3, Tokito teaches an electroluminescent device comprising a substrate (Fig. 11, 'substrate'), a laminated body composed of an anode (Fig. 11, 'ITO electrode'), an electroluminescent layer directly on the anode (Fig. 11, 'organic layer'; Column 11, lines 51-59), a cathode (Fig. 11, 'MgAg Mirror Electrode'), and  $2n+1$  transparent layers, where  $n = 0, 1, 2, 3, \dots a$ , which transparent dielectric layers alternately have a high refractive index of  $n > 1.7$  and are made  $\text{TiO}_2$  (Fig. 11, 'multilayered film mirror'—see  $\text{TiO}_2$  layers) and a low refractive index of  $n \leq 1.7$  and are made of  $\text{SiO}_2$  (Fig. 11, 'multilayered film mirror'—see  $\text{SiO}_2$  layers), and the transparent

dielectric layer bordering on the anode has a high refractive index (Fig. 11, see  $\text{TiO}_2$  layer directly adjacent to 'ITO electrode'). Tokito fails to teach wherein the anode is adjacent to the substrate and the  $2n+1$  transparent dielectric layers are adjacent to the cathode.

In the same field of endeavor, Weaver teaches an electroluminescent device including a quarter-wave filter of alternating dielectric layers with alternating refractive indices (Column 2, lines 25-51), like Tokito, and further wherein the quarter-wave filter is provided either between the anode and the substrate (structure of Tokito) (Fig. 2, 110 & 120 & 142; Column 4, lines 7-16; Column 4, lines 49-50) or directly on the cathode with the anode directly on the substrate (Fig. 3, 210 & 242 & 220; Column 5, lines 48-61), thus exemplifying recognized equivalent structures of the organic electroluminescent device with quarter-wave filter in the art.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the quarter-wave filter of Tokito directly on the second electrode instead of between the anode and the substrate and to therefore have the anode directly adjacent to the substrate, since the selection of any of these known equivalents would be considered within the level of ordinary skill in the art as evidenced by Weaver's teaching.

Regarding claims 4-6, Tokito teaches an electroluminescent device comprising a substrate (Fig. 11, 'substrate'), a first electrode (Fig. 11, 'ITO electrode'), an electroluminescent layer formed on the first electrode (Fig. 11, 'organic layer'; Column 11, lines 51-59), a second electrode (Fig. 11, 'MgAg Mirror Electrode'), and  $2n+1$  transparent layers, where  $n = 0, 1, 2, 3, \dots a$ , which transparent dielectric layers

alternately have a high refractive index of  $n > 1.7$  and are made  $\text{TiO}_2$  (Fig. 11, 'multilayered film mirror'—see  $\text{TiO}_2$  layers) and a low refractive index of  $n \leq 1.7$  and are made of  $\text{SiO}_2$  (Fig. 11, 'multilayered film mirror'—see  $\text{SiO}_2$  layers), and the transparent dielectric layer bordering on the first electrode has a high refractive index (Fig. 11, see  $\text{TiO}_2$  layer directly adjacent to 'ITO electrode'). Tokito fails to teach the quarter-wave filter is formed on the second electrode.

In the same field of endeavor, Weaver teaches an electroluminescent device including a quarter-wave filter of alternating dielectric layers with alternating refractive indices (Column 2, lines 25-51), like Tokito, and further wherein the quarter-wave filter is provided either between the first electrode and the substrate (structure of Tokito) (Fig. 2, 110 & 120 & 142; Column 4, lines 7-16; Column 4, lines 49-50) or on the second electrode (Fig. 3, 210 & 242 & 220; Column 5, lines 48-61), thus exemplifying recognized equivalent structures of the organic electroluminescent device with quarter-wave filter in the art.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the quarter-wave filter of Tokito on the second electrode instead of between the first electrode and substrate, since the selection of any of these known equivalents would be considered within the level of ordinary skill in the art as evidenced by Weaver's teaching.

Regarding claim 7, Weaver further teaches wherein the first transparent dielectric layer is configured to reduce reflection of light generated by the electroluminescent layer at the second metallic electrode so that more light passes through the second electrode

(Column 3, lines 3-12; Column 4, lines 53-56; Column 5, line 52). Motivation to combine is the same as for claim 4.

Regarding claim 8, Weaver further teaches wherein the quarter-wave filter is configured to increase transmission of light generated in the electroluminescent layer through the second electrode (Column 3, lines 3-12). Motivation to combine is the same as for claim 4.

Regarding claims 9 and 10, Weaver further teaches wherein the OLED device and filter structure are used as a computer monitor or a television (Column 1, lines 13-23) and wherein the quarter-wave filter is tuned to transmit light at a peak wavelength within the range of wavelengths emitted by the OLED (Column 3, lines 3-12). One of ordinary skill in the art would reasonably contemplate that, since televisions are composed of an array of red, green, and blue pixels, the quarter-wave filter of Weaver would be tuned individually for the red, green, or blue pixels within the array of the television display device such that for the red pixels, the quarter-wave filter would be tuned to transmit light at a peak wavelength in the red spectral region, and would thereby reduce transmission in the blue spectral region, in order to provide a television display that has an optimum red chromaticity for the red pixels of the display.

Therefore, it would have been obvious to have the quarter-wave filter configured to reduce transmission in a blue spectral region, at least for a red pixel, in order to provide a television display that has an optimum red chromaticity for the red pixels of the display. Motivation to combine with Tokito is the same as for claim 4.

Note that although the applicant has recognized another advantage that would flow naturally from the suggestion of the prior art (i.e. reducing transmission in the blue

spectral region to increase daylight contrast), this cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Regarding claim 11, Weaver further teaches wherein the quarter-wave filter is configured to vary color of light emitted from the electroluminescent device (Column 3, lines 3-12). Motivation to combine is the same as for claim 4.

Regarding claim 12, Weaver further teaches wherein the quarter-wave filter is configured to form a color filter (Column 3, lines 3-12). Motivation to combine is the same as for claim 4.

Regarding claim 13, Weaver further teaches wherein the OLED device and filter structure are used as a computer monitor or a television (Column 1, lines 13-23) and wherein the quarter-wave filter is tuned to transmit light at a peak wavelength within the range of wavelengths emitted by the OLED (Column 3, lines 3-12). One of ordinary skill in the art would reasonably contemplate that, since televisions are composed of an array of red, green, and blue pixels, the quarter-wave filter of Weaver would be tuned individually for the red, green, or blue pixels within the array of the television display device, in order to provide a television display that has an optimum chromaticity for each of the red, green, and blue pixels of the display.

Therefore, it would have been obvious to have the quarter-wave filter configured to generate light having transmission peaks that lie in wavelength ranges of the red, green, and blue colors in order to provide a television display that has an optimum chromaticity for each of the red, green, and blue pixels of the display. Motivation to combine with Tokito is the same as for claim 4.

Regarding claim 14, Weaver teaches wherein the quarter-wave filter is tuned to transmit light at a peak wavelength within the range of wavelengths emitted by the OLED (Column 3, lines 3-12). Since Weaver discloses tuning the filter to transmit a single peak wavelength from the range of wavelengths emitted by the electroluminescent device, the Examiner considers this to meet the requirement that a width of the transmission peak of light emitted from the electroluminescent device is reduced since tuning a filter to transmit a peak wavelength will lessen the transmission of the other wavelengths in the range emitted by the device, thereby reducing the width of the peak transmitted as compared to the originally emitted.

Regarding claim 15, Weaver further teaches wherein the OLED device and filter structure are used as a computer monitor or a television (Column 1, lines 13-23). One of ordinary skill in the art would reasonably contemplate that, since televisions are composed of an array of red, green, and blue pixels that the electroluminescent layer of the display is divided into a plurality of color pixels in order to provide the required array pixels for the television or computer monitor displays. Therefore, it would have been obvious to one of ordinary skill in the art to have the electroluminescent layer of the display divided into a plurality of color pixels in order to provide the required array pixels for the television or computer monitor displays.

Regarding claim 18, Weaver further teaches wherein a quarter-wave filter is provided both on the second electrode (Fig. 4, 320a & 346) and between the first electrode and the substrate (Fig. 4, 310 & 320b & 342), isolating the first electrode from the substrate. Motivation to combine is the same as for claim 4.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. (US 6406801) (of record) and Weaver (US 6888305) in view of Morii (US 2001/0044035).

Regarding claims 16 and 17, Tokito and Weaver teach the invention of claim 4, but fail to teach wherein the transparent cathode (second electrode) which borders the electroluminescent layer comprises a first layer and a second layer formed over the first layer where the first layer includes either calcium or barium and the second layer includes aluminum, copper, silver or gold.

In the same field of endeavor of transparent cathode electrodes adjacent to the electroluminescent layer of an OLED device, Morii teaches a two layer cathode with a first layer and a second layer formed over the first layer where the first layer includes calcium and the second layer includes aluminum, silver or gold in order to provide a transparent cathode with an appropriate work function (Pages 2-3, Paragraph [0034]).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Tokito and Weaver to have the two layer transparent cathode of Morii in order to provide a transparent cathode with an appropriate work function, as disclosed by Morii.

### ***Response to Arguments***

Applicant's arguments filed July 11, 2007 have been fully considered but they are not persuasive. Specifically, a translation of Foreign Priority Document DE 10228939.5, provided in German, has not been provided as required. See above remarks under the heading "Priority".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Anne M Hines  
Patent Examiner  
Art Unit 2879

  
**MARICELI SANTIAGO**  
**PRIMARY EXAMINER**